



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/770,984

02/03/2004

Gurupdes S. Pandher

82352

2191

22242 7590 01/07/2008
FITCH EVEN TABIN AND FLANNERY
120 SOUTH LA SALLE STREET
SUITE 1600
CHICAGO, IL 60603-3406

EXAMINER

SHAIKH, MOHAMMAD Z

ART UNIT

PAPER NUMBER

4172

MAIL DATE

DELIVERY MODE

01/07/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/770,984	Applicant(s) PANDHER, GURUPDESH S.	
	Examiner MOHAMMAD Z. SHAIKH	Art Unit 4172	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>5/24/04</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Priority

1. Examiner has given consideration to applicant's Provisional Application No. 60/0455, 099. For examining purposes of this application, the effective filing date will be February 26, 2003.

Claim Objections

2. Claim 3-6 are being rejected to because of the following informalities: the claim recites wherein identifying and later recites comprising identifying. The claim is very confusing as to what Applicant is trying to claim. An appropriate correction is required.

Claim Rejections- 35 U.S.C §101

2. 35 US.C 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3 Claims 20-23 are being rejected because the claimed invention is directed to non-statutory subject matter.

Claim 20, recites a digital memory medium, which by itself is non-statutory. MPEP § 2106.02 states: Nonfunctional descriptive material that does not constitute a statutory process, machine, manufacture, or composition of matter and should be rejected under 35 U.S.C. 101. Certain types of descriptive material, such as music, literature, art, photographs, and mere arrangements or compilations of facts or data, without any functional interrelationship is not a process, machine, manufacture, or composition of matter. Applicant does not recite a computer readable-medium being

capable of execution on a computer processor. Claims 21-23 are also being rejected because they depend from claim 20. Applicant is advised to satisfy the statutory requirements for the claims by correcting the claim language.

Claim Rejections- 35 U.S.C § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) The invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 3, 4, 6-9 are being rejected under 35 U.S.C 102(b) as being anticipated by US 2001/0056391 to Schultz.

Regarding claim 1, Schultz discloses a method for valuing options comprising: selecting an option (claim 1); providing empirical data that corresponds to the option (claim 5); processing the empirical data using regression modeling to provide an option valuation model for the option (paragraph 0069); using the option valuation model to value the option with respect to future worth (paragraph 0057).

Regarding claim 3, Schultz discloses the method of claim 1 wherein providing empirical data that corresponds to the option further comprises providing empirical data for a substantially immediately preceding window of time (paragraph 0069).

Regarding claim 4, Schultz discloses the method of claim 1 wherein providing empirical data that corresponds to the option further comprises providing empirical data

for a preceding window of time having at least a predetermined duration (paragraph 0069).

Regarding claim 6, Schultz discloses the method of claim 1 wherein providing empirical data that corresponds to the option further comprises providing pricing information that corresponds to the option (paragraph 0069).

Regarding claim 7, Schultz discloses the method of claim 6 wherein providing pricing information that corresponds to the option further comprises providing daily closing prices for a plurality of days as corresponds to the option (paragraph 0068).

Regarding claim 8, Schultz discloses the method of claim 1 wherein processing the empirical data using regression models to provide an option valuation model for the option further comprises projecting market option prices over localized regions of the option's state process (paragraphs: 0069,0070).

Regarding claim 9, Schultz discloses the method of claim 8 wherein projecting market option prices over localized regions of the option's state process further comprises projecting market option prices over localized regions of the option's state process up to projected maturity of the option (paragraph 0073).

6. Claim 20 is being rejected under 35 U.S.C 102(b) as being anticipated by Non Patent Literature document, "Empirical Performance of Alternative Option Pricing Models", by Bakshi, Cao, and Chen, *The Journal of Finance*, Vol. 52, No. 5 (Dec, 1997), herein referred to as *Journal of Finance*.

Regarding claim 20, *Journal of Finance* discloses empirical data that corresponds to an option; an option valuation model derived as a function, at least in part, of processing the empirical data using regression modeling (pages 2005-2007).

Claim Rejections- 35 U.S.C § 103

7. Claims 2&5 are being rejected under 35 U.S.C 103(a) as being unpatentable over Schultz in view of U.S 2004/0068457 to Tao et al, herein referred to as Tao and further in view of Official Notice.

Regarding claim 2, Schultz discloses the method of claim 1. However Schultz does not disclose wherein selecting an option further comprises selecting at least one of **an** index option; **an** interest rate option; a currency option; a stock option; a commodity option; a forward contract. Tao discloses wherein selecting an option further comprises selecting at least one of an index option; an interest rate option; a currency option;; a stock option; a commodity option;; a forward contract (paragraphs:0010,0013, 0024,0025,0030; claim 4). Tao does not explicitly teach a bond option and a futures contract. Official Notice is taken that a bond option and a futures contract are old and well known in the art. Therefore it would have been obvious to one of ordinary skill in the art to modify Schultz's invention to include an index option; **an** interest rate option; a currency option; a stock option; a commodity option; a forward contract; a bond option; a forward contract. One of ordinary skill in the art would have been motivated to include an index option; **an** interest rate option; a currency option; a stock option; a commodity

option; a forward contract; a bond option; a forward contract in order to ensure that all types' options are available to the user.

Regarding claim 5, Schultz discloses the method of claim 4. However Schultz does not disclose wherein providing empirical data for a preceding window of time having at least a predetermined duration further comprises providing empirical data for a preceding window of time comprising at least fifty days. Tao discloses wherein providing empirical data for a preceding window of time having at least a predetermined duration further comprises providing empirical data for a preceding window of time comprising at least fifty days (paragraph 0043). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Schultz's invention to include wherein providing empirical data for a preceding window of time having at least a predetermined duration further comprises providing empirical data for a preceding window of time comprising at least fifty days. One of ordinary skill in the art would have been motivated to include providing empirical data for a preceding window of time having at least a predetermined duration further comprises providing empirical data for a preceding window of time comprising at least fifty days in order to ensure that the window of fifty days gives the user a good estimation of the what the future value of the option might become.

8. Claims 10, 13-15 are being rejected under 35 U.S.C 103(a) as being unpatentable over Schultz in view of U.S Patent 6,061,662 to Makivic.

Regarding claim 13, Schultz discloses the method of claim 1. However Schultz does not disclose wherein processing the empirical data using regression modeling to provide an option valuation model for the option further comprises projecting market options onto a quadratic state-space of corresponding state variables that characterize the option. Makivic discloses wherein processing the empirical data using regression modeling to provide an option valuation model for the option further comprises projecting market options onto a quadratic state-space of corresponding state variables that characterize the option (column 26, lines 47-50; column 9, lines 28-43). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Makivic's invention to include wherein processing the empirical data using regression modeling to provide an option valuation model for the option further comprises projecting market options onto a quadratic state-space of corresponding state variables that characterize the option. One of ordinary skill in the art would have been motivated to include wherein processing the empirical data using regression modeling to provide an option valuation model for the option further comprises projecting market options onto a quadratic state-space of corresponding state variables that characterize the option in order to ensure that the regression model comes as close as possible to the actual value of the option.

Regarding claim 14, Schultz discloses the method of claim 13. However Schultz does not disclose wherein processing the empirical data using regression modeling to provide an option valuation model for the option yet further comprises taking into account implied volatility of the option. Makivic discloses wherein processing the

empirical data using regression modeling to provide an option valuation model for the option yet further comprises taking into account implied volatility of the option (column 5, lines 19-21; column 10, lines 12-15). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Schultz's invention to include wherein processing the empirical data using regression modeling to provide an option valuation model for the option yet further comprises taking into account implied volatility of the option. One of ordinary skill in the art would have been motivated to include wherein processing the empirical data using regression modeling to provide an option valuation model for the option yet further comprises taking into account implied volatility of the option in order to ensure that the regression model comes as close as possible to the actual value of the option.

Regarding claim 15, Schultz discloses the method of claim 1. However Shultz does not disclose wherein using the option valuation model to value the option with respect to future worth further comprises localizing estimation of option regressions to sub-regions of overall state space as corresponds to the option. Makivic discloses wherein using the option valuation model to value the option with respect to future worth further comprises localizing estimation of option regressions to sub-regions of overall state space as corresponds to the option (column 25, lines 22-24). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Shultz's invention to include wherein using the option valuation model to value the option with respect to future worth further comprises localizing estimation of option regressions to sub-regions of overall state space as corresponds to the option. One of

ordinary skill in the art would have been motivated to include wherein using the option valuation model to value the option with respect to future worth further comprises localizing estimation of option regressions to sub-regions of overall state space as corresponds to the option in order to ensure that users determine a future target value for the option at the present time.

9. Claims 12, 17-19 are being rejected under 35 U.S.C 103(a) as being unpatentable over Schultz in view of *Journal of Finance*.

Regarding claim 12, Schultz discloses the method of claim 1. However Shultz does not disclose wherein processing the empirical data using regression modeling to provide an option valuation model for the option further comprises providing a reduced-form option valuation mode. *Journal of Finance* discloses wherein processing the empirical data using regression modeling to provide an option valuation model for the option further comprises providing a reduced-form option valuation mode (page: 2016). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Schultz's invention to include wherein processing the empirical data using regression modeling to provide an option valuation model for the option further comprises providing a reduced-form option valuation model. One of ordinary skill in the art would have been motivated to include a feature wherein processing the empirical data using regression modeling to provide an option valuation model for the option further comprises providing a reduced-form option valuation model in order to ensure that the user has access to many different option valuation models before they decide when to exercise their options.

Regarding claim 17, Schultz discloses the method of claim 1. However Shultz does not disclose wherein processing the empirical data using regression data to provide an option valuation model for the option further comprises providing a plurality of different option valuation models. *Journal of Finance* teaches wherein processing the empirical data using regression data to provide an option valuation model for the option further comprises providing a plurality of different option valuation models (pages: 2004-2010). Therefore it would have been obvious to one of ordinary skill in the art to modify Schultz's invention to include wherein processing the empirical data using regression data to provide an option valuation model for the option further comprises providing a plurality of different option valuation models. One of ordinary skill in the art would have been motivated to include a feature to process the empirical data using regression data to provide an option valuation model for the option further comprises providing a plurality of different option valuation models in order to ensure that the user has access to many different option valuation models before they decide when to exercise their options.

Regarding claim 18, Schultz discloses the method of claim 17. However Schultz does not disclose wherein providing a plurality of different option valuation models further comprises: developing resultant data using the plurality of different option valuation models; comparing the resultant data with historical data for the option; selecting a particular one of the plurality of different option valuation models as based, at least in part, on comparing the resultant data with historical data for the option to provide a selected option valuation model. *Journal of Finance* discloses wherein

providing a plurality of different option valuation models further comprises: developing resultant data using the plurality of different option valuation models; comparing the resultant data with historical data for the option;

selecting a particular one of the plurality of different option valuation models as based, at least in part, on comparing the resultant data with historical data for the option to provide a selected option valuation model (pages: 2014-2020). Therefore it would have been obvious to one of ordinary skill in the art to modify Shultz's invention to include wherein providing a plurality of different option valuation models further comprises: developing resultant data using the plurality of different option valuation models; comparing the resultant data with historical data for the option; selecting a particular one of the plurality of different option valuation models as based, at least in part, on comparing the resultant data with historical data for the option to provide a selected option valuation model. One of ordinary skill in the art would have been motivated to include a feature to provide a plurality of different option valuation models further comprises: developing resultant data using the plurality of different option valuation models; comparing the resultant data with historical data for the option; selecting a particular one of the plurality of different option valuation models as based, at least in part, on comparing the resultant data with historical data for the option to provide a selected option valuation model in order to ensure that depending on the user's preference, the best possible option valuation model is available for their particular needs.

Regarding claim 19, Schultz discloses the method of claim 18. However Shultz does not disclose wherein using the option valuation model to value the option with respect to future worth further comprises using the selected option valuation model to value the option with respect to future worth. *Journal of Finance* discloses wherein using the option valuation model to value the option with respect to future worth further comprises using the selected option valuation model to value the option with respect to future worth (page 2017). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Schultz's invention to include wherein using the option valuation model to value the option with respect to future worth further comprises using the selected option valuation model to value the option with respect to future worth. One of ordinary skill in the art would have been motivated to include a feature to use the option valuation model to value the option with respect to future worth further comprises using the selected option valuation model to value the option with respect to future worth in order to ensure that users can make an informed decision as to when they would exercise their option.

10. Claim 21 is being rejected under 35 U.S.C 103(a) as being unpatentable over *Journal of Finance* in view of Tao.

Regarding claim 21, *Journal of Finance* discloses wherein the option. However *Journal of Finance* does not specifically disclose the options comprises at least one of: an index option; an interest rate option; a currency option; a bond option; a stock option; a commodity option; a futures contract; a forward contract. Tao discloses wherein selecting an option further comprises selecting at least one of an index option;

an interest rate option; a currency option;; a stock option; a commodity option;; a forward contract (paragraphs:0010,0013, 0024,0025,0030; claim 4). Tao does not explicitly teach a bond option and a futures contract. Official Notice is taken that a bond option and a futures contract are old and well known in the art. Therefore it would have been obvious to one of ordinary skill in the art to modify *Journal of Finance's* invention to include an index option; **an** interest rate option; a currency option; a stock option; a commodity option; a forward contract; a bond option; a forward contract. One of ordinary skill in the art would have been motivated to include an index option; **an** interest rate option; a currency option; a stock option; a commodity option; a forward contract; a bond option; a forward contract in order to ensure that all types' options are available to the user.

11. Claims 22&23 are being rejected under 35 U.S.C 103(a) as being unpatentable over *Journal of Finance* in view of Makivic.

Regarding claim 22, *Journal of Finance* discloses the option valuation model. However *Journal of Finance* does not disclose wherein the option valuation model further comprises an option valuation model that is derived as a function, at least in part, of projecting market option prices over localized regions of state processes of the option. Makivic discloses an option valuation model further comprises an option valuation model that is derived as a function, at least in part, of projecting market option prices over localized regions of state processes of the option (column 25, lines 31-43). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify *Journal of Finance's* invention to include an option valuation model

further comprises an option valuation model that is derived as a function, at least in part, of projecting market option prices over localized regions of state processes of the option. One of ordinary skill in the art would have been motivated to include an option valuation model further comprises an option valuation model that is derived as a function, at least in part, of projecting market option prices over localized regions of state processes of the option in order to ensure that users will be able to anticipate the future price of stocks and exercise their options accordingly.

Regarding claim 23, *Journal of Finance* discloses the option valuation model. However *Journal of Finance* does not disclose the option valuation model further comprises an option valuation model that is derived as a function, at least in part, of projecting market option prices over localized regions of state processes of the option up to projected maturity of the option. Makivic discloses an option valuation model further comprises an option valuation model that is derived as a function, at least in part, of projecting market option prices over localized regions of state processes of the option up to projected maturity of the option (Table 1). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify *Journal of Finance's* invention to include an option valuation model further comprises an option valuation model that is derived as a function, at least in part, of projecting market option prices over localized regions of state processes of the option up to projected maturity of the option. One of ordinary skill in the art would have been motivated to include an option valuation model further comprises an option valuation model that is derived as a function, at least in part, of projecting market option prices over localized regions of

Art Unit: 4172

state processes of the option up to projected maturity of the option in order to ensure that users will be able to anticipate the future price of stocks and exercise their options accordingly.

CONCLUSION

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MOHAMMAD Z. SHAIKH whose telephone number is (571)270-3444. The examiner can normally be reached on Monday-Friday (7:30-5); alt Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dixon can be reached on 571-272-6803. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Mohammad Z Shaikh/
Examiner, Art Unit 4172

Mohammad Z Shaikh
Examiner
Art Unit 4172

/Naeem Haq/
Primary Examiner, Art Unit 4172

Jan 08